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HAMMOCK
AS A
LIFE PRESERVER.

R. B. FORBES.

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JAMES F. JOHNSON & CO., PRINTERS
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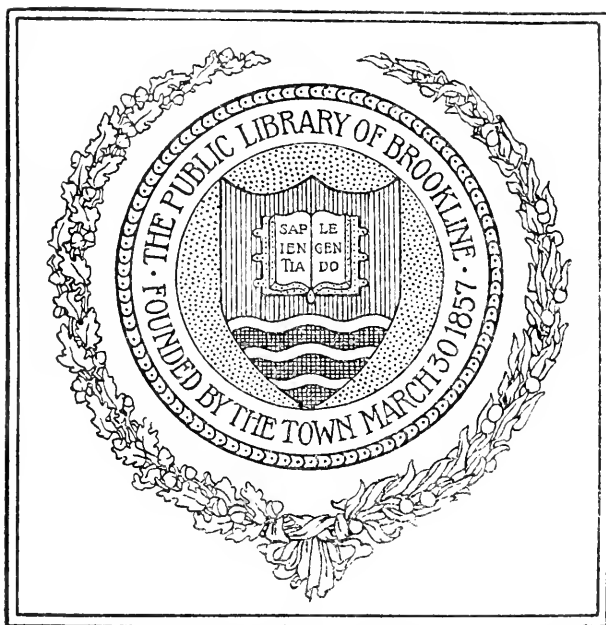
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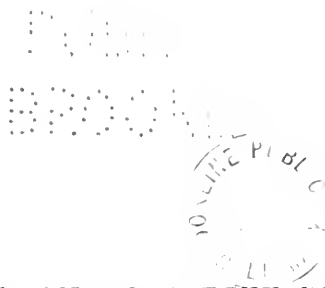
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THE HAMMOCK AS A LIFE PRESERVER.

In Volume 8, No. 81 of the "Journal of the National Life Boat Institution" there is an interesting paper from Admiral Ryder, regarding the Naval Hammock as a life preserver. he cites the report of Commander Bridge, at Malta, which says, "a well lashed hammock, with bed and blanket, supported for a few minutes seven naked men; for a considerable time four men and would I believe have continued to do so for an hour." Captain Wilshurst made further experiments, and says:

| | |
|--|-------------|
| "Weight of water displaced by a well lashed hammock, | 138.24 lbs. |
| Weight of hammock with bed, etc., | 24.5 |
| | <hr/> |
| Buoyancy of a dry hammock, | 113.75 |

Length 55½ inches. diameter 9¼. volume 2.16 cubic feet, a weight of 6 lbs. attached to one end sank it in five minutes. and when attached to the middle. in nine minutes. by oiling the ticking it floated 2½ hours and would have supported a man for that time. the horse hair bed costs 10s. 6d. sterling; the bed filled with cork shavings 5s., and with cocoa fibre 7s. 6d.; a bed 6 feet by 4 and 4 inches thick stuffed with cork shavings weighs 20 lbs. and supports 80 lbs. dead weight."

These are very important figures. I propose to illustrate more fully the value of the hammock for saving life, carrying out anchors, etc. A 1st rate. like the Wabash, with a crew of 600 would be supplied. at least, with 600 hammocks and beds. By the aid of her

studding-sail booms and yards, always at hand, a raft may be constructed after due drilling in ten minutes or less. 3 top-mast studding-sail booms 50 feet long, and 4 top-gallant studding-sail booms 38 feet long, 10 and 8 inches diameter, estimated at 83 cubic feet, lashed together as in sketch No. 1, and well supported by cross ropes, will contain 8 lengths and 30 widths of hammocks, each 6 by 1, making in two layers 480, supposing them to be filled with cork shavings, each will float 80 lbs. or 38,400, the spars should give at least 1,000, total 39,400, over $17\frac{1}{2}$ tons, or 262 men weighing 150 each; while the entire buoyancy of a mass of hammocks would not be proportionately so effective as the single one. I estimate that all hands could be *sustained*, some being in the water; and with the aid of eight large boats, capable of carrying 30 to 50 men each, a quantity of supplies could also be placed on and near the raft. Emergencies do not often occur where the crew of a 1st rate require such aid, but several cases are on record where precautions of this kind would have saved many lives.

A smaller raft for this class of vessels, composed of 3, 50 feet, and 4, 38 feet booms, stiffened by three studding-sail yards of 28 feet, will contain 8 lengths, by 16, or 256 in two layers, and can float each 80 lbs. or 20,480 lbs., adding the floating power of the spars at 1,200 we have 21,680 or nearly $9\frac{1}{2}$ tons, or 144 men at 150 each. Two such rafts would *sustain* the whole crew and with the help of the boats would carry supplies for a considerable time.

For carrying out an anchor and hawser, under certain circumstances when boats could not be available, this smaller raft would be very useful.

Estimating a bower or sheet-anchor at 9,000 lbs., a hawser of 120 fathoms at 6,240 and 10 men at 150,

we have 16,740 lbs. still, leaving of spare buoyancy, 4,940 lbs.

But, as it ought never to be expedient to carry out any greater weight of anchor than would be equivalent to the hawser, I recommend a stream anchor of 1,800, the hawser at 6,240, and eight men 1,200, making 9,240, this leaves of effective spare buoyancy, 12,440 lbs.

A stream-anchor, backed by a kedge of 8 or 900, the latter sent out by a boat, is all that would generally be needed as an equivalent for the 15 inch hawser.

The spars should be uppermost when the raft is launched, and the cross ropes and smaller spars must be arranged so as to keep the hammocks in place. To effect this they must be lashed to each other and to the spars, cross ropes, etc. The application of the same principle may be illustrated in other classes of vessels, for instance as in sketch No. 2, the Hartford, 2d rate, with a crew of 360. Her three topmast studding-sail booms, each 40 feet; four top-gallant studding-sail booms, 36 feet; two yards of 26 and two of 20, lashed together will contain 6 by 25, in two layers 300, at 80 lbs., 24,000, and spars, 1,000, 25,000, or 166 men at 150 lbs., with the help of boats, can *sustain* the crew and supplies.

For the 2d class raft of this ship, three booms of 40, two of 30; three yards of 26 and two of 20, giving 6 by 20 in two layers, or 240, at 80 lbs. 19,200, and spars 1,000, total 20,200, will carry 134 men: this, with the boats, would carry all hands and would easily support a stream anchor of 1,500; hawser, 5000; 8 men, 1,200; 7,700, leaving of spare buoyancy 12,500.

A 3d class raft for this ship, consisting of three booms of 40, two of 30; two yards of 26 and four of 20, would give 6 by 14; two layers 168, at 80, 13,440

and spars 1,000, and support 96 men, the anchor, etc., leaving 6,740 spare buoyancy.

The 3d rate raft represented by Juniata, would consist of three booms of 36, four of 28; two yards of 17 and four of 13; these will carry 5 by 23; two layers, 230; at 80, 18,400; spars, 800, 19,200, or 128 men, and with the aid of boats all hands, say 220, would be saved. Estimating her stream anchor, and hawser and men at 8,000, there would be surplus buoyancy of 10,400. Her No. 2 raft would consist of three spars of 36, four of 17, three of 13, and contain 5 by 14; two layers, 140, at 80, 11,200; spars, 600; 11,800, or 79 men, and be capable of carrying out the 8,000 lbs. of anchor, &c., leaving 3,800 lbs. spare buoyancy.

These figures, with the accompanying sketches, will illustrate to the nautical mind, with sufficient accuracy, the capacity of certain material in spars and hammocks always available at short notice to a well disciplined crew to *sustain* all hands in sudden emergencies, as fire, collision, sinking by torpedoes, &c.

While Captain Ericsson and Mr. Lay are contesting the merits of their new inventions for destroying ships, it is our duty to contrive means for saving their crews.

While we are contriving armor to make ships impervious to shot, and guns that will bore through anything, we must go hand in hand in this *work of humanity* and contrive means to save the men.

I have assumed in the foregoing that the naval hammock bed *must* be filled with cork shavings. But we will suppose the Navy Department governed by economy retains the ordinary hair bed now in use, how shall we make the hammock a life-preserver. In discussing the cork bed, it will be well to keep in mind

the necessity for frequent drill in raft construction and in floating all hands by means of the individual hammock when they are ordered to go over instantly without attempting to construct the raft. In this drill, without which the whole thing is likely to fail, the cork bed must be wet with salt water, it will be difficult to dry and consequently be unhealthy.

Suppose then we attach to each hammock with its hair bed, thin slabs of cork sufficient to sustain a man in the water, say enough to support 16 lbs. of dead weight and easily removable for scrubbing, this will make the ordinary hammock and bed a good *individual* life-preserver, but for drilling purposes the blanket and the bed will be soaked in a few minutes, how shall we get over this? I recommend stowing each hammock in a close woven cotton canvas bag, carefully tied and the ends fitted with beackets and lanyards ready to lash them to each other and to the spars and cross ropes. I have proved by careful experiments that the ordinary hammock with hair bed, blanket, etc., placed in this bag, *floated 24 hours with one 32-lb. shot attached to it, then another was added, and it continued to float another day.* and I think would have floated indefinitely, or, at least, as long as any man could live exposed on a raft at sea.

All new issues of hammocks should have the cork bed; all present hammocks should have the cork slabs, and all, *whether hair or cork, should be stowed in a bag.* this will keep the bedding and hammock dry and clean and wholesome, and render it unnecessary to scrub them so frequently in salt water.

It will doubtless be argued that the tying of the bag will be badly done in sudden emergencies, and water will get in. Admitting this; if we have the cork bed or the slabs, we may save all hands. Suppose

that one-third fail, and also reduce the buoyancy from 80 to 60 lbs. for the 1st rate; this would leave 320 effective, at 60 lbs., 19,200, and spars 1,000, = 21,680, still leaving the raft buoyant enough to *carry* the stream anchor and hawser, or 144 men, and to *sustain* many more.

The great merit of the bag will be that in the drill the contents will be kept perfectly dry. The only possible objection I can see to the bag is the fact that it will require a minute or two more time to lash the hammock and stow it in the bag; for a very sudden emergency, like the sinking of the *Oncida*, the bag might be dispensed with; if the bed be of cork, that alone could be used; but I hold that any well drilled crew can lash and stow hammocks in bags and be on deck in five minutes or less.

Looking at the life-saving capabilities of the raft and hammock in all bearings, I cannot but conclude that the bag is the right thing, whether we have the cork bed, the cork slabs, or the hair bed, and it should be adopted by the navies of the world.

It is a question in my mind whether the hammock should not take the place of bunks for steerage passengers. I shall not be surprised to find that allowing the space to each required by law, a want of room would not be the principal objection to this; the objection will be found in the difficulty of accustoming steerage passengers to use hammocks. On the score of health and ventilation it would certainly be good.

Should the cost of the bag be an objection, it must be remembered that cork costs less than hair, and that the bag may occasionally be utilized for other purposes.

R. B. FORBES.

NOTE.

It appears that the bag with which my experiments were made, on board of the U. S. Ship Ohio, by Commodore O'Neil, was water-proofed. — So that what I have said, as to the bag, is not correct. I shall make further experiments, and give the results in an appendix, or further note.

I doubt not the canvas bag, made of close woven cotton canvas, will answer the purpose; if not, the water-proofing will not add much to the cost while it will add greatly to durability.

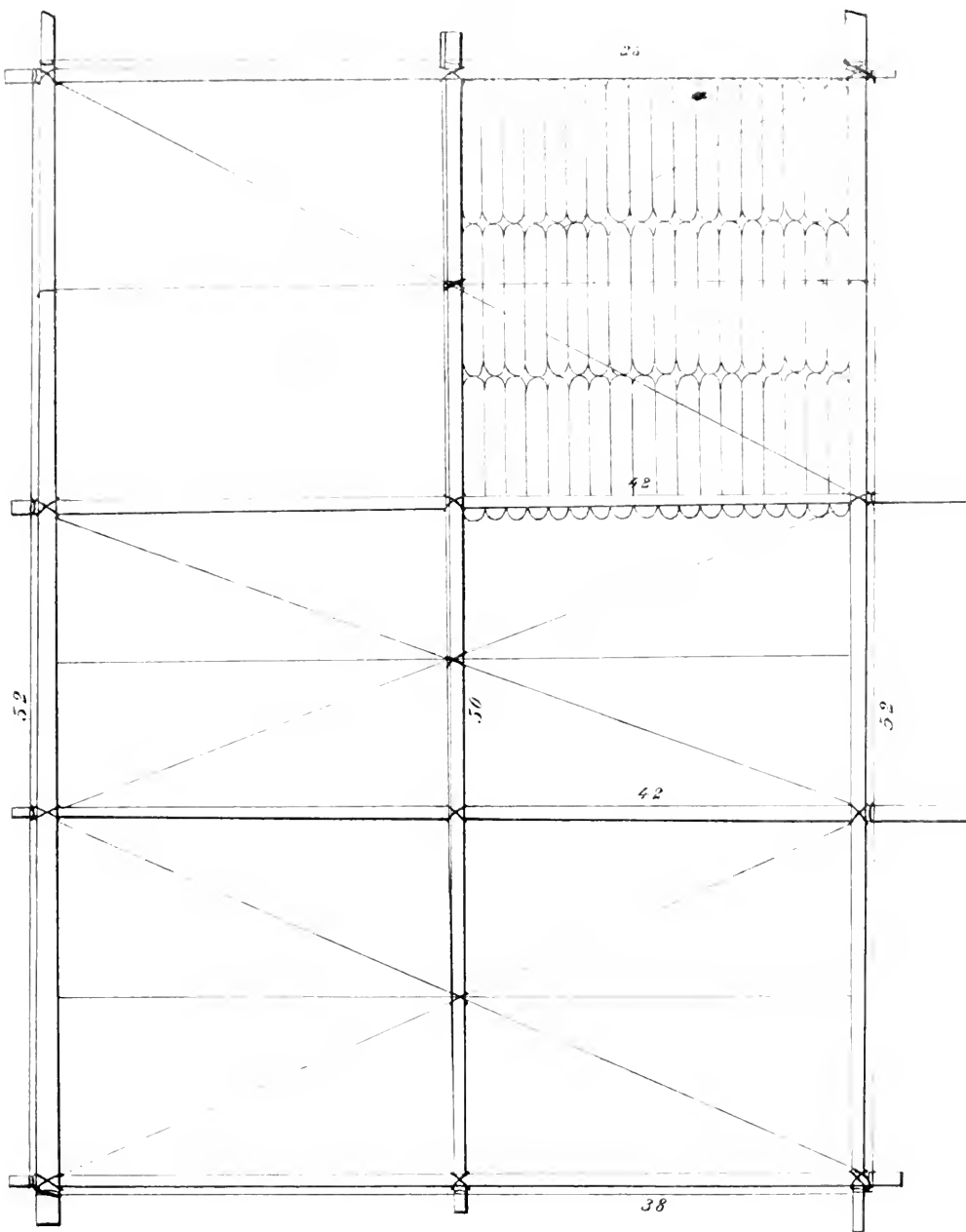
Further careful experiments made at the Navy Yard, Charlestown, show that a cotton canvas bag subjected to a process called water-proofing, supported two thirty-two pound shot, 29 hours and 40 minutes, the mattress being stuffed with cork shavings, and a common hair mattress, such as are furnished to the navy, in the same bag remained 10 hours and 13 minutes above water, with the same load. A cotton canvas bag not water-proofed does not answer.

R. B. F.

9 December, 1873.

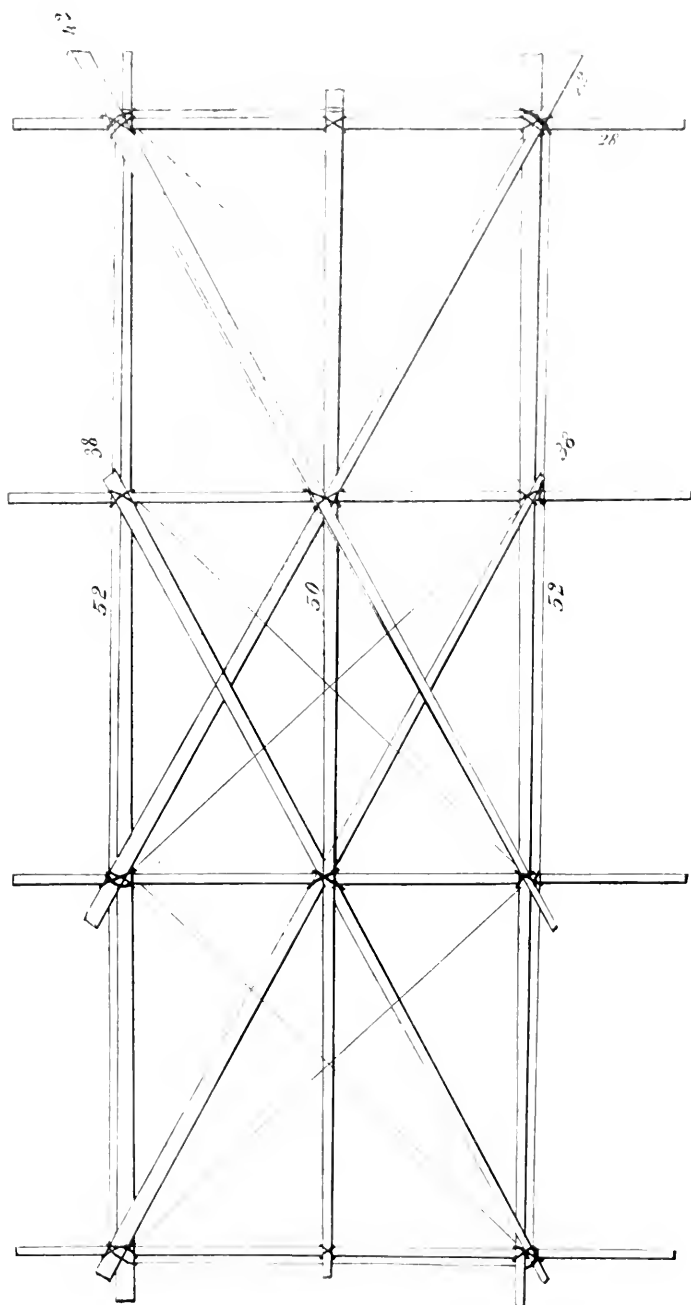
1ST CLASS WABASH N^o1

Scale 1/8



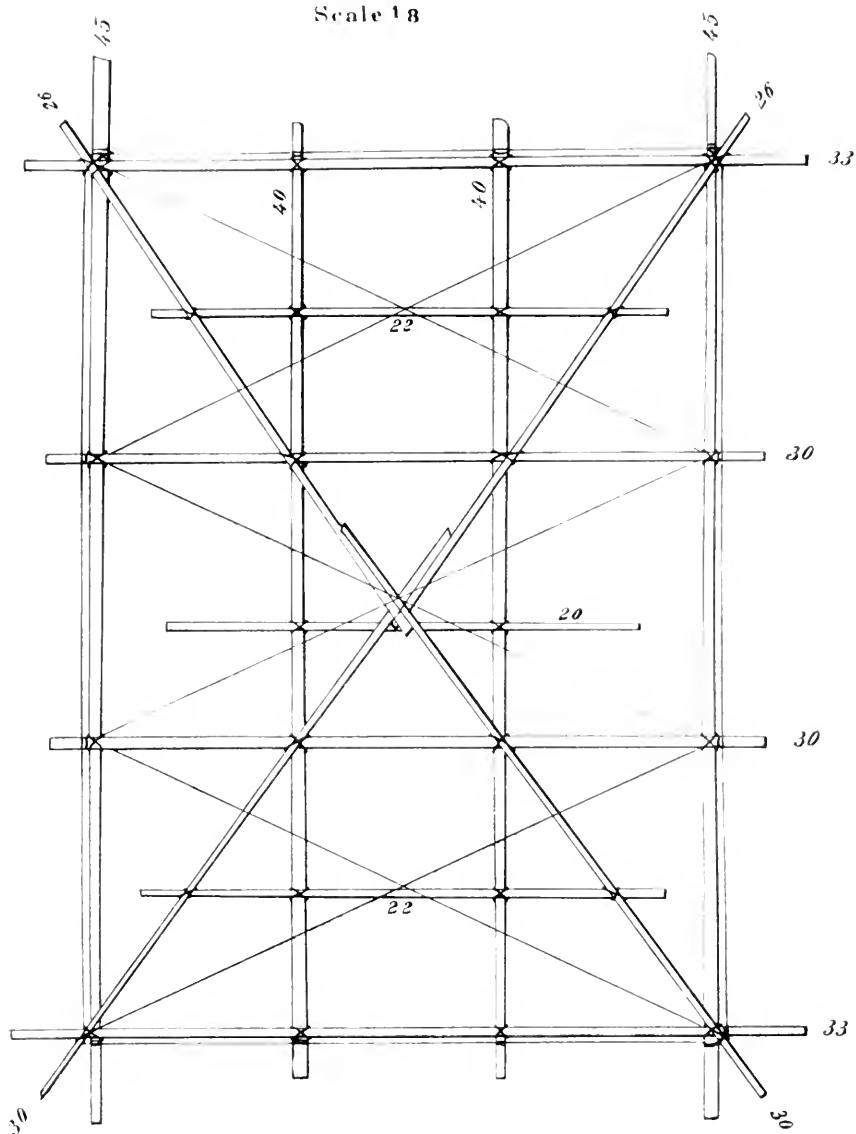
N^o 2 RAFT OF 1ST CLASS

Scale 1/8



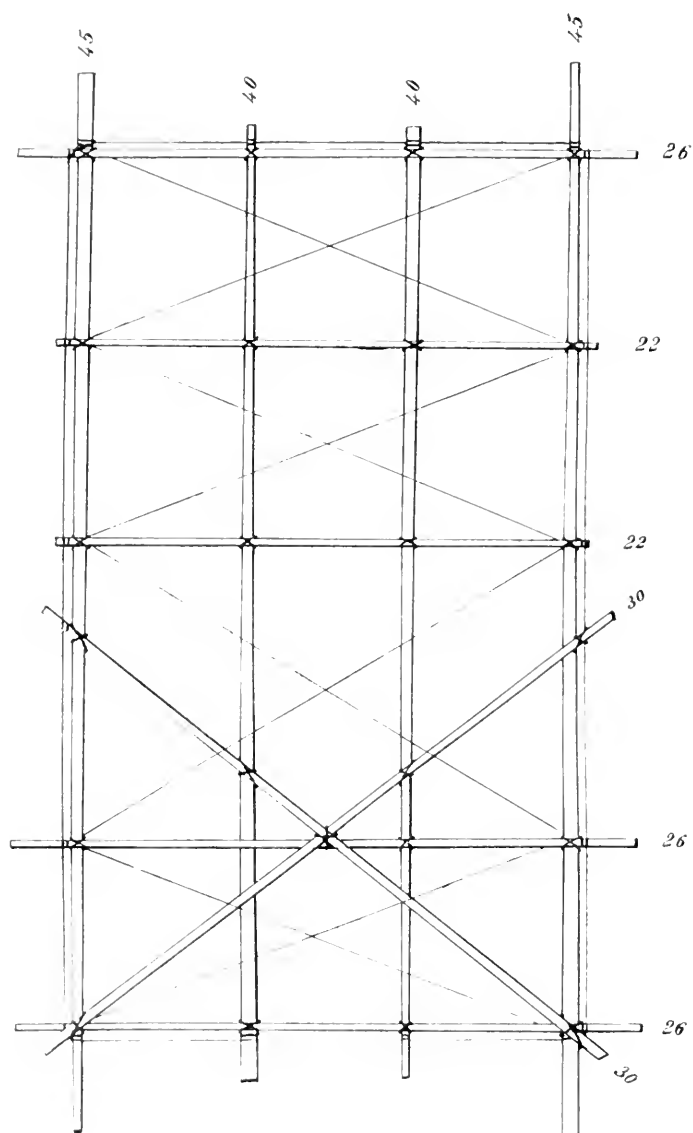
2° RATE HARTFORD N° 2

Scale 18



2^D RATE HARTFORD

2^D SIZE RAFT



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